Remarks

1. Status of the Claims

Presently pending are claims 1-14, 17, 18, 21-23, and 25-27, of which claims 1, 8, 13 18, and 22 independent and the remainder are dependent. Claims 7, 17, 18, and 25 are currently amended. Claim 18 has been amended solely to re-arrange the limitations to make the claim clearer. Claims 7, 17, and 25 have been amended solely to remove a typographical error.

2. Summary of the Office Action

In the office action mailed April 1, 2009, the Examiner objected to claims 7, 17, and 25, rejected claim 18 under 35 U.S.C. § 112, second paragraph, rejected claims 1, 2, 4-6, 13, and 22 under 35 USC § 102(e) as being anticipated by U.S. Patent Pub. No. 2002/0163929 (Li), and rejected claims 3, 7-12, 14, 17, 18, 21, 23, and 25-27 under 35 U.S.C. § 103(a) as being unpatentable over Li in view of "PAMAS – Power Aware Multi-Access Protocol with Signaling for Ad Hoc Networks" (Singh).

3. Response to Objection and Rejections

a. The Examiner's objections to claims 7, 17, and 25 should be withdrawn

Applicant submits that the Examiner's objections to claims 7, 17, and 25 have been obviated by the current amendments to the claims. In light of the forgoing, Applicant respectfully requests that the objections be withdrawn, and claims 7, 17, and 25 be allowed to issue.

b. The Examiner's rejection of claim 18 under 35 U.S.C. § 112 should be withdrawn

Applicant submits that the Examiner's rejection of claim 18 is improper, and should be withdrawn. Applicant respectfully submits that the reference to "said first interval" on line 13 of claim 18 finds antecedent support in line 12 of claim 18, which states that the station is

configured to "refrain from contending for access to said shared resource for a first interval substantially equal to said first backoff interval value."

In light of the forgoing, Applicant respectfully requests that the Examiner's rejection of claim 18 under 35 U.S.C. § 112 be withdrawn, and claim 18 allowed to issue.

c. The Li Reference Fails to Anticipate Claims 1, 2, 4-6, 13, and 22

As noted above, the Examiner rejected claims 1, 2, 4-6, 13, and 22 under 35 USC § 102(e) as being allegedly anticipated by Li.

Applicant notes that the Court of Appeals for the Federal Circuit has held that "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Applicant submits that the Li reference fails to anticipate each and every element of the currently claimed invention.

i. Li fails to disclose "determining a first backoff interval by measuring an average wait time that one of said ... stations incurred during pervious access attempts..."

First, Applicant submits that the Li reference fails to anticipate the claim limitation of claim 1 requiring "determining a first backoff interval by measuring an average wait time that one of said ... stations incurred during previous access attempts..."

The Examiner cites paragraphs [0014]-[0016], figure 5, and paragraphs [0059]-[0064] of Li as disclosing this claim limitation requirement. However, the cited portions of the Li reference merely disclose a method of determining a backoff window "based on at least one operational characteristic of the network." (See claim 1, and paragraph [0015]). Importantly, the only two 'operational characteristics' disclosed in the Li reference are collision rate and number of users. (See paragraph [0016] and claims 3 and 8). Li fails to disclose a determination of a

first backoff interval by measuring an average wait time that one of said stations incurred during previous access attempts," as required by the claims. As set forth in the Summary of the Invention section of the disclosure, by measuring average access times on a station-by-station basis, each station can determine a unique backoff period representing an average wait time that it takes to access the shared medium. Once a station knows this average period, it can transfer from a slot-based backoff to a time-based backoff for the initial backoff period, thus allowing the station to power-down for the backoff period and save power.

In contrast to the forgoing, figure 5 and the corresponding disclosure in Li are all directed to calculating an actual collision rate relative to a preferred collision rate, and modifying the backoff window applied to all stations in the network in order to move the actual collision rate closer to the preferred collision rate. Such a disclosure fails to read on the claimed method of determining a backoff interval at each station by measuring an average wait time that the station incurred during a plurality of previous access attempts by that same station.

For at least this reason, Applicant submits that the Examiner has failed to assert a proper rejection under 35 U.S.C. § 102, and that claim 1 should be allowed to issue.

ii. **Li fails to disclose "once....the shared resource first becomes available, preventing the one station from contending for access to said resource for an interval substantially equal to the first backoff interval."**

Second, Applicant submits that the Li reference fails to anticipate the claim limitation of claim 1 requiring "once....the shared resource first becomes available, preventing the one station from contending for access to said resource for an interval substantially equal to the first backoff interval." Applicant submits that this claim limitation requires that the time-based backoff period uniquely determined for that same station be applied to that station once the shared medium becomes available, preventing that station from accessing the shared medium for the

average time period calculated based on a plurality of previous attempts by that same station to access the shared medium.

In contrast, Li discloses applying a backoff interval calculated across all of the stations in the network, and applied indiscriminately to all stations in order to achieve a desired network operational characteristic, such as a particular collision rate. (See claims 1, 3, and 8, and paragraphs [0015]-[0017]). Such a disclosure fails to read on the claim limitation requiring calculation of an average backoff interval based on previous access attempts of a same station, and application of the average backoff interval to the same station upon which the value was calculated.

For at least this reason also, Applicant submits that the Examiner has failed to assert a proper rejection under 35 U.S.C. § 102, and that claim 1 should be allowed to issue.

Furthermore, Li fails to disclose "once…the shared resource becomes available, preventing the one station from contending for access…for an interval substantially equal to the first backoff interval." As set forth in paragraph [0065] of Li, the disclosed method "randomly selects a number (k) between one and the size of the backoff window….the random number identifies which of the upcoming reservation slots the wireless device 14 will use to attempt another reservation." Accordingly, Li does not prevent a station from accessing the shared medium for the backoff interval, but instead, calculates a random sub-interval of the calculated backoff interval and allows the station to access the network during that sub-interval.

Not only does such a disclosure fail to read on the claim limitations requiring preventing the station from accessing the wireless medium for the entirety of the backoff interval, but it would also prevent any sort of power-saving from being incorporated into the device as the transceiver would need to remain powered-on to support any result of the random slot-selection algorithm.

For at least this reason also, Applicant submits that the Examiner has failed to assert a proper rejection under 35 U.S.C. § 102, and that claim 1 should be allowed to issue.

iii. **Li fails to disclose the additional limitations of claim 4.**

Specifically regarding claim 4, and in addition to the arguments set forth above, Applicant submits that paragraphs [0059] and [0060] fail to disclose that the backoff interval is based on at least one of "i) a moving average; and ii) a contention window value." As set forth above, the cited paragraphs of Li are directed to a method of calculating an actual collision rate relative to a preferred collision rate, and modifying the backoff window applied to all stations in the network in order to move the actual collision rate closer to the preferred collision rate.

Such a disclosure fails to read on the claim limitation requiring that the backoff interval be calculated based on a plurality of previous access attempts by one station, and that the calculation utilizes at least one of "i) a moving average; and ii) a contention window value."

For at least this reason also, Applicant submits that the Examiner has failed to assert a proper rejection under 35 U.S.C. § 102, and that claim 4 should be allowed to issue.

iv. **Li fails to disclose the additional limitations of claim 5.**

Specifically regarding claim 5, and in addition to the arguments set forth above, Applicant submits that paragraphs [0014]-[0016], figure 5, and paragraphs [0059]-[0064] fail to disclose the application of a second random backoff period added on top of a pre-determined first backoff period so as to prevent the first station from accessing the shared medium for a period of time equal to the first pre-determined backoff period + the second random backoff period.

Li's disclosure fails to read on the claim limitation requiring that the "station is prevented from contending for access to the shared resource for a second random backoff period beyond said first determined backoff period."

For at least this reason also, Applicant submits that the Examiner has failed to assert a proper rejection under 35 U.S.C. § 102, and that claim 5 should be allowed to issue.

v. **Li fails to disclose the additional limitations of claim 6.**

Specifically regarding claim 6, and in addition to the arguments set forth above, Applicant submits that paragraphs [0014]-[0016], figure 5, and paragraphs [0059]-[0064] fail to disclose "wherein said second random backoff period can assume a nonzero value only after an unsuccessful attempt to transmit occurs."

Applicant has been unable to locate any disclosure in the cited portions of the Li reference directed to the application of a pre-determined first backoff period, a randomly selected random period extending the first backoff period by a random amount, and wherein "said second random backoff period can assume a nonzero value only after an unsuccessful attempt to transmit occurs."

Rather, Li merely discloses the application of a random slot selection method in selecting a slot within the first backoff period for accessing the medium. (See paragraph [0065]).

For at least this reason also, Applicant submits that the Examiner has failed to assert a proper rejection under 35 U.S.C. § 102, and that claim 6 should be allowed to issue.

vi. **Li fails to disclose the additional limitations of claims 13 and 22.**

Applicant submits that claims 13 and 22 included similar limitations to those noted above in regard to claim 1. For at least the reasons noted above, Applicant submits that claims 13 and 22 are also distinguishable over the cited art of record.

For at least these reasons, Applicant submits that the Examiner has failed to assert a proper rejection under 35 U.S.C. § 102, and that claims 13 and 22 should be allowed to issue.

d. The Li and Singh References Fail to Render Claims 3, 7-12, 14, 17, 18, 21, 23, and 25-27 Obvious.

As set forth earlier, in the last Office Action, the Examiner rejected claims 3, 7-12, 14, 17, 18, 21, 23, and 25-27 under 35 U.S.C. § 103(a) as being unpatentable over Li in view of "PAMAS – Power Aware Multi-Access Protocol with Signaling for Ad Hoc Networks" (Singh).

As set forth on pages 5-11 of the Office Action, the Examiner exclusively relied upon the Li reference to disclose the claim limitations directed to "determining a first backoff interval by measuring an average wait time that one of said … stations incurred during pervious access attempts…" and "once….the shared resource first becomes available, preventing the one station from contending for access to said resource for an interval substantially equal to the first backoff interval." For at least the reasons noted above, Applicant submits that the Li reference fails to disclose what the Examiner cited to the reference as disclosing, and thus, the Examiner has failed to assert a prima facie case of obviousness. The Singh reference does not compensate for the failed disclosures of the Li reference.

For at least this reason, Applicant submits that the Examiner has failed to assert a proper rejection under 35 U.S.C. § 103, and that claims 3, 7-12, 14, 17, 18, 21, 23, and 25-27 should be allowed to issue.

Additionally, Applicant submits that the Singh reference does not provide any disclosure, teaching, or suggestion that would lead one of ordinary skill in the art to modify the Li reference in the manner asserted by the Examiner to arrive at Applicant's currently claimed invention.

Section 2.1 of Singh, cited by the Examiner, merely discloses that a transceiver may be powered down when there are no pending transfers between wireless stations. There is

absolutely no disclosure, teaching, or suggestion in the cited portion of Singh outside of this simple statement.

In contrast to the forgoing, the claimed wireless stations have pending transfers, and in fact, would like to access the shared medium to transmit the pending data. However, in order to avoid collisions, the currently claimed invention enforces a pre-determined backoff period calculated based on an average wait time across a plurality of previous medium access attempts made by a station. It is during this backoff period, when pending data is waiting to be transferred, that the transmitter and/or receiver circuit is caused to enter a power-saving state.

Accordingly, Applicant submits that the evidence cited by the Examiner would lead one of ordinary skill in the art, in reviewing the Singh reference to, at most, modify another wireless transmission method and/or system to cause a wireless transceiver to enter a power save state when there are no pending data transactions between two stations. One of ordinary skill in the art, in reviewing the Singh reference, would not have been led to modify Li in the manner asserted by the Examiner. The Examiner has failed to cite any evidence beyond Singh that would lead one of ordinary skill in the art to the currently claimed invention.

For at least this reason also, Applicant submits that the Examiner has failed to assert a proper rejection under 35 U.S.C. § 103, and that claims 3, 8-12, 14, 18, 21, 23, and 26-27 should be allowed to issue.

4. Conclusion

Applicant submits that, for at least the forgoing reasons, all claims are currently in condition for allowance, and respectfully request that a notice thereof be sent.

Should the Examiner wish to discuss this case, the Examiner is invited to call the undersigned at (312) 913-0001.

Respectfully submitted,
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